## Space Weather Forecast

Issued on Tuesday, 26 October 2021 at 01:26 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

**Space Weather Forecast Headline: Daily slight chance of Moderate-class X-ray flares.**

### Analysis of Space Weather Activity over past 24 hours

**Solar Activity:** Solar activity was Low through the period, with two common class flares observed, these both during the evening of 25th UTC from a region just around the eastern limb. There are currently five numbered sunspots regions on the visible disc. AR2886 in the southwest quadrant remains a simple and stable spot. AR2887 is the largest sunspot on the disc, which is located in the southeast quadrant. It remains magnetically complex, with continued changes to its intermediate spots. Despite its magnetic complexity, there has been very little activity from this region. AR2888, in the east quadrant, remains small and simple. AR2890, to the west of AR2886, has shown some growth with several small spots developing, though still relatively simple. Finally, AR2889 to the south of AR2888 has recently developed but remains very small. No Earth directed CME's have been observed in available imagery.

**Solar Wind / Geomagnetic Activity:** The solar wind was at background levels throughout. The interplanetary magnetic field was mostly weak and the important north-south component was subsequently weak. Resultant geomagnetic activity was Quiet (Kp 0-2) with one Unsettled interval (Kp 3).

**Energetic Particles / Solar Radiation:** No solar radiation storms were observed.

### Four-Day Space Weather Forecast Summary

**Solar Activity:** There is a daily Slight Chance of Moderate class X-ray flares, largely the result of the complexity of AR2887, although this has yet to be borne out in observed X-ray activity. There is a possible returning region just over the northeast limb that may yet increase probabilities over the next few days, however these do not yet feature in the percentages.

**Solar Wind / Geomagnetic Activity:** No Earth-directed coronl mass ejections feature in this forecast period. Coronal hole 15/+ is expected to become geoeffective early on Day 3 (28th). Due to its positive orientation and given it remains connected to the northern polar crown, a slight enhancement of solar wind speed is possible, perhaps bringing brief Unsettled or Active intervals on Day 3 in an otherwise Quiet geomagnetic period.

**Energetic Particles / Solar Radiation:** No solar radiation storms are currently expected.

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# Met Office Space Weather Forecast

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 1 | 2 | 5 | 2 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 20 | 20 | 20 | 20 |
| Very Active | R3 to R5 X | No | 2 | 2 | 2 | 2 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 1 | 1 | 1 | 1 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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